City of Lafayette Staff Report

For: Lafayette City Council

By: Christine Sinnette, Senior Planner

Date Written: February 18, 2008

Meeting Date: February 25, 2008

Subject: Public hearing and adoption of Ordinance No. 570 amending Section 3-101, Permit Fees, LMC and adopting Ordinance No. 2007-54 of the County of Contra Costa adopting the (1) 2007 California Building Code, (2) 2007 California Electrical Code, (3) 2007 California Plumbing Code, and (4) 2007 California Mechanical Code, with changes, additions and deletions

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Staff Comments

The proposed project is the direct adoption of Ordinance No. 570 to adopt Ordinance No. 2007-54 of the County of Contra Costa adopting the (1) 2007 California Building Code, (2) 2007 California Electrical Code, (3) 2007 California Plumbing Code, and (4) 2007 California Mechanical Code. Ordinance No. 570 will be added to Chapter 3-3, Title 3 – Building Regulations of the Lafayette Municipal Code, LMC.

The California Building Standards Commission adopted the 2007 Building Standards Code which is comprised of the 2007 California Building, Mechanical, Plumbing and Electrical Codes which became effective statewide on January 1, 2008. On November 27, 2007, the County Board of Supervisors adopted Ordinance No. 2007-54 adopting the state codes with amendments based on local conditions. Whenever the California codes were updated by the California Building Standards Commission in the past, they were subsequently adopted by the County and then by the City. In adopting the previous codes, the County also adopted amendments based on local climatic, geological or topographical conditions. The amendments adopted by Ordinance No. 2007-54 are primarily a re-adoption of amendments adopted during past updates of the California codes. However, there are several new additions to these amendments as outlined below.

- ✓ An increase in separation between adjacent buildings on the same property and at property lines to prevent damage from pounding during an earthquake.
- ✓ An increase in the lateral stiffness of concrete shear walls to address a deficiency in the statewide code's design provisions.

- ✓ Requires the installation of a smoke detector in existing flat roof buildings when a pitch roof is added on top of the existing flat roof and the solid sheathing of the flat roof is not removed.

In reviewing existing Title 3, LMC, staff discovered that Chapter 3-1, Permit Fees has not been updated to reflect the City's current surcharge of 50 percent on building and grading permits issued by the County. Ordinance No. 570 includes an update to reflect the 50 percent surcharge.

CEQA

Adoption of Ordinance No. 570 and the provisions it contains are exempt from the California Environmental Quality Act pursuant to California Code of Regulations, §15061(b)(3) because this project is covered under the general rule that CEQA applies only to projects that have the potential for causing a significant effect on the environment. Adoption of Ordinance No. 570 and the administrative code provisions it contains have no potential for causing an effect on the environment.

Conformity with the General Plan, Specific Plans, and the Zoning Ordinance

The proposed adoption of Ordinance No. 570 and its provisions have has no effect on the general plan, any applicable specific plans, or the zoning ordinance.

Public Notice

A legal ad summarizing Ordinance No. 570 was published in the Contra Costa Times on January 16 and 21, 2008.

Fiscal Impact

None.

Recommendation

Conduct public hearing and adopt Ordinance No. 570.

Attachments

A. Ordinance No. 570
B. Staff report for November 27, 2007 meeting of the Contra Costa County Board of Supervisors with findings in support of changes, additions, and deletions to Statewide Building Standards Code

BEFORE THE CITY COUNCIL OF THE CITY OF LAFAYETTE

In the Matter of:

Amending Section 3-101, Lafayette Municipal Code and Adopting Ordinance No. 2007-54 of The County of Contra Costa adopting the (1) 2007 California Building Code, (2) 2007 California Electrical Code, (3) 2007 California Plumbing Code, and (4) 2007 California Mechanical Code, with changes, additions and deletions.	Ordinance No. 570

The City Council of the City of Lafayette does ordain as follows:

Section 1. Section 3-101 is amended to read as follows:

Pursuant to city council Resolution 2006-038, a fee of fifty percent of the total fee charged by the county building inspection department is established. Hereafter, the percent of surcharge may be revised by the city council as allowed by state law. (Ord. 570 § 1.)

Section 2. The title of Chapter 3-3 is amended to read California Building Standards Codes.

Section 3. Section 3-301 is amended to read Ordinance No. 2007-54 of the County of Contra Costa is hereby adopted by the City Council of the City of Lafayette. (Ord. 570 § 3.)

Section 4. Section 3-302 is amended to read as follows:

3-302 References to officials in adopted codes.

In Ordinance 2007-54 of Contra Costa County and each of the California Codes that the Ordinance adopts, a reference to "Board of Supervisors" means the City Council of the City of Lafayette, and a reference to an office, official title, or other designation means the office, title or designation in the governmental structure of the City, or if there is none, the official or title holder in the City who performs the function or duty referred to. (Ord. 570 § 4.)

Section 5. Section 3-303 is amended to read as follows:

3-303 County Ordinance Code Chapter 72-6 – General Provisions

Article 72-6.2
Permits and Fees

72-6.202 Permits. No person, firm, or corporation shall erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish any building or structure regulated by this title, or cause the same to be done, or install or connect any equipment regulated by this title, or perform any work regulated by this title, without first obtaining the necessary permits from the county building official. (Ord. 570 § 5.)

72-6.204 Fees.

(a) Fees shall be paid with the submission of an application for any permit required by this title. No application may be filed and accepted as complete until all required fees have been paid. Any permit issued without the payment of all required fees is invalid and of no force and effect. Permit fees and other fees will be in amounts set forth in fee schedules adopted by the Board of Supervisors.

(b) A person who starts any work for which a permit is required under this title without first having obtained a permit shall, if later issued a permit for such work, pay double the permit fee. This provision does not apply to emergency work if the county building official determines that the emergency work was urgently necessary and that it was not practicable to obtain a permit before starting the work. In all such cases, a permit must be obtained as soon as it is practicable to do so, and if there is an unreasonable delay in obtaining the permit, a double fee shall be charged. (Ord. 570 § 5.)

72-6.206 State license required.

(a) No permit shall be issued to a person to do or cause to be done any work regulated by this title except to the holder of a valid, unexpired and unrevoked license in good standing, issued under Chapter 9, Division 3 of the California Business and Professions Code. Permits may be issued to persons and for work exempt from that statute, and as otherwise provided in this section.

(b) Building permits. A building permit may be issued to a person holding a valid, unexpired, unrevoked California general contractor's license. If the permit applicant is the owner of the structure occupied by or designed to be occupied by the owner and the owner performs all work under the permit, a building permit may be issued to the owner for work in a one-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters.

(c) Electrical permits.

(1) An electrical permit may be issued to a person holding a valid, unexpired, unrevoked California electrical contractor's license, or to a person holding a valid, unexpired, unrevoked California general contractor's license where the contractor is working on a permitted job and is performing two or more crafts on the permitted job. If the permit applicant is the owner of the structure occupied by or designed to be occupied by the owner and the

owner performs all work under the permit, an electrical permit may be issued to the owner for work in a one-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters.

(2) Instead of a separate permit for each building, structure, premises, installation or alteration, an annual electrical permit may be issued to any person regularly employing one or more electricians for electrical work in premises owned or occupied by the applicant for the permit. In the first 15 days of each calendar month, the holder of an annual permit shall report to the county building official on all electrical work done under the annual permit during the preceding month.

(d) Plumbing permits. A plumbing permit may be issued to a person holding a valid, unexpired, unrevoked California plumbing contractor's license, or to a person holding a valid, unexpired, unrevoked California general contractor's license where the contractor is working on a permitted job and is performing two or more crafts on the permitted job. If the permit applicant is the owner of the structure occupied by or designed to be occupied by the owner and the owner performs all work under the permit, a plumbing permit may be issued to the owner for work in a one-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters.

(e) Mechanical permits. A permit for the erection, installation, moving alteration, repair or replacement of any heating or cooling equipment may be issued to a person holding a valid California warm air heating, ventilating, and air conditioning contractor's license, or to a person holding a valid, unexpired, unrevoked California general contractor's license where the contractor is working on a permitted job and is performing two or more crafts on the permitted job. If the permit applicant is the owner of the structure occupied by or designed to be occupied by the owner and the owner performs all work under the permit, a mechanical permit may be issued to the owner for work in a one-family dwelling used exclusively for living purposes, including the usual accessory buildings and quarters. (Ord. 570 § 5.)

72-6.208 Misrepresentations in permit application. No person shall make a false statement or misrepresentation in or in connection with an application for a permit under this title. Any permit issued under this title may be revoked or suspended at any time by the county building official for fraud, misrepresentation or false statement contained in an application for a permit, or for violation of this title in connection with work done under the permit. (Ord. 570 § 5.)

72-6.210 Permit not approval of violations or determination of ownership. The issuance of a permit or approval of plans and specifications shall not be construed as a permit for an approval of any violation of this title or code or determination that the permittee is the owner of the subject property or otherwise authorized to do the work for which the permit has been issued. No permit presuming to give authority to violate or cancel the provisions of this title shall be valid except insofar as the work or use which it

authorizes is lawful. The issuance of a permit based on plans and specifications shall not prevent the county building official from later requiring the correction of errors in the plans and specifications or from preventing building operations being carried on under the permit in violation of this title or other regulation of this county. (Ord. 570 § 5.)

72-6.212 Expiration of permit. Every permit issued by the county building official becomes void if the building or work authorized is not begun within 180 days from the permit's date, or if it is suspended or abandoned for 180 continuous calendar days without excuse satisfying the county building official as being beyond control and remedy by the permittee. Evidence of starting work shall consist of at least one required inspection within 180 days of the permit issuance date or the date the permit was suspended or the work was abandoned. Once a permit becomes void, a new permit shall be obtained before any work is commenced or recommenced, and a new permit fee shall be paid. Any permittee holding an unexpired permit may apply for a permit extension upon a showing of good and satisfactory reason acceptable to the county building official. If the permittee is unable to commence work within the time required by this section, the county building official may extend the time of the permit for a period not exceeding 180 days upon written request by the permittee. No permit shall be renewed more than once. (Ord. 570 § 5.)

72-6.214 Refunds. The county building official may authorize the refund of required permit fees as follows:

(a) Unused Building Permit. On the voiding of a permit within 60 days after issuance, no work having been done, the holder may be allowed a refund of the amount in excess of 15 dollars but not more than 80 percent of the permit fee paid. On the voiding of a permit during the period between sixty days and one year after issuance, no work having been done, the holder may be allowed a refund of the amount in excess of fifteen dollars or one-half the total amount paid for the permit, whichever is smaller. No refunds of plan check fees for issued permits shall be allowed. Any unused plumbing, electrical, or mechanical permit(s) taken in conjunction with a building permit are governed by the refund procedures in subsection (b) of this section.

(b) Unused plumbing, electrical, or mechanical permits. No refund of deposits for these permits (including subpermits issued in conjunction with building permits, and miscellaneous permits) shall be allowed, except that on the voiding of a permit within one year after issuance, no work having been done, the holder may be allowed a refund of the amount in excess of 10 dollars. (Ord. 570 § 5.)

Article 72-6.4
Enforcement

72-6.402 Abatement procedure. Any condition existing in violation of this title is a public nuisance. The procedure for the abatement of any building or any other condition declared to be a public nuisance in violation of this title is the procedure specified in Chapter 1-9, Administrative Citations and Chapter 8-21, Code Enforcement of this code.

As an alternative to this procedure, abatement may be performed pursuant to the procedure specified in Article 6 (Action and Proceedings) of Subchapter 1 (State Housing Law Regulations) of Chapter 1 of Division 1 of Title 25 (Housing and Community Development) of the California Code of Regulations (25 C.C.R., § 48 et seq.). That procedure is adopted by this reference as though fully set forth herein. (Ord. 570 § 5.)

72-6.404 Stop work orders. Whenever any work is being done contrary to this title or any other law or regulation (including, but not limited to, the following: zoning, health, sanitation, grading, fire protection and safety, or flood control) relating to or affecting the work, the county building official may order the work stopped by notice in writing served on any persons engaged in the doing or causing of the work; and these persons shall stop work immediately until authorized by the county building official to proceed with the work. The stop work order will state the reason for the order and the conditions under which the cited work may be permitted to resume. If the work continues after the issuance of a stop work order, each day the work continues is a separate code violation. (Ord. 570 § 5.)

72-6.406 Entry on premises.

(a) Whenever it is necessary to make an inspection to enforce the provisions of this code, or whenever the county building official has cause to believe that there exists in any building or upon any premises any violation of this code or any condition that makes the building or premises unsafe, unsanitary, dangerous or hazardous, the county building official may enter the building or premises at all reasonable times to inspect or to perform the duties imposed upon the county building official by this code. If entry is refused, the county building official has recourse to every remedy provided by law to secure entry.

(b) No person shall conceal any work until it is inspected and written approval to proceed is given. No person shall cover electrical work, or allow it to be covered, to prevent or hinder its inspection, or remove any notice not to cover placed by the county building officials. (Ord. 570 § 5.)

76-6.408 Correction notice. If the county building official finds any work as out of compliance with this division, the building official will give written notice to the person engaged in the work. Within 10 days after this notice, or within any reasonable further time that the county building official may prescribe, the person doing the work shall change or remove the work or equipment as the county building official may require to make it comply fully with this division. (Ord. 570 § 5.)

72-6.410 Withhold permit. The county building official may, in his or her sound discretion, withhold the issuance or reinstatement of a permit under this Title 7 for any structure on a parcel of land concerning either or both of which there exists any violation of law or regulation (including but not limited to the following: building, grading, zoning, fire protection and safety, health, sanitation, or flood control) relating to or affecting that permit. In determining whether a permit shall be issued, the county building official will also consider whether the existing violation constitutes an unlawful occupancy or a

hazard to life or property. The county building official may require correction of a violation before issuing a permit, or as a condition of issuance within a stated period of time including any extensions granted for good cause shown. Failure to comply with such condition is a ground for revocation as provided by law. (Ord. 570 § 5.)

72-6.412 Disconnection of utility service.

(a) The county building official may shut off or disconnect any or all utility service to any structure or facility or to any electrical conductor or apparatus that is in violation of any state or county law or regulation relating thereto or that endangers the public health, safety or welfare, or the county building official may order this done.

(b) If the county building official finds that the violation involves an immediate danger to person(s) or properties or to the public health, safety or welfare, the county building official may have the action taken as quickly as he or she deems necessitated by the danger; otherwise the county building official will give 10 days advance notice thereof by mail to the utility and to the owner as shown on the last assessment roll and by conspicuous posting on the property; and the county building official will post notice of the orders and the action taken, which no person shall remove, tamper with or disobey. The county building official will rescind or modify such action which it becomes proper to do so in view of the danger or violation. (Ord. 570 § 5.)

76-6.414 Power companies to notify county building official.

(a) Notice. Whenever in, on or about any building any person engaged in the distribution or sale of electrical energy or natural gas sets, resets, installs or reinstalls any meter for the measurement of electrical energy or natural gas, or connects or reconnects to, or supplies or services any installation of electrical equipment or natural gas, or change the nominal voltage of electrical supply or service to any installation of electrical equipment, or changes any electrical supply or service from two-wire to three-wire or vice versa, or from single-phase to polyphase or vice versa, or from direct current to alternating current or vice versa, that person shall within 2 days thereafter, exclusive of Sundays and holidays, give written notice thereof to the county building official specifying the location and address of the installation affected.

(b) Thirty-Day Exception. This notice need not be given for work expressly approved by the county building official within 30 days after inspection approval.

(c) Authorization Required. No person engaged in the distribution or sale of electrical energy shall connect a distribution system, including windpower generators, or any live supply or service conductor(s) therefrom, to any electrical equipment in, on or about any building or cause or allow any energizing of such connections, including windpower or emergency/stand by electrical generation until the county building official inspects the electrical equipment and authorizes

such connections. No gas utility provider engaged in the distribution or sale of natural gas shall connect a distribution system to any natural gas equipment in, on or about any building until the county building official inspects the natural gas installation and authorizes such connections.

(d) Permit required. A permit shall be obtained from the county building official to restore electrical or gas service to any structure that has been without such service for 90 days or more. The county building official will notify the servicing utility that the electrical service equipment and associated wiring has been inspected and approved before electrical or gas service may be reinstated.

(e) Waiver. The county building official may, at his or her discretion, temporarily or permanently waive any or all requirements of this article by giving written notice of such waiver to all persons involved. The county building official may likewise at any time revoke such waiver by similar notice. (Ord. 570 § 5.)

72-6.416 Enforcement of state law. By authority of Section 18300 of the Health and Safety Code, the county assumes the responsibility for enforcement of Part 2.1 of Division 13 of the Health and Safety Code relating to mobilehomes and mobilehome parks, including regulations adopted thereunder and contained in Chapter 2 (Mobilehome Parks Act) of Division 1 of Title 25 of the California Code of Regulations (25 C.C.R. §§ 1000 et seq.) and to the extent allowed by such laws and regulations, may enforce by the remedies allowed under Division 14 of this code. (Ord. 570 § 5.)

Article 72-6.6
Other Provisions

76-6.604 General safety. All work shall be performed, and all equipment shall be constructed, installed, protected, operated, repaired, used and maintained, in accordance with the requirements of this division and in such manner as to be reasonably safe and free from risk of accident or injury to person or property. No person shall act contrary to this general regulation or neglect to act as required hereby. (Ord. 570 § 5.)

72-6.606 Liability of county. This title shall not be construed to impose on the county any liability or responsibility for damage resulting from defective building, plumbing, mechanical or electrical work; nor shall the county, or any official or employee of the county, be held to assume this liability or responsibility because of the inspection authorized under this title. The issuance of a building permit under this title shall not be construed as a determination by the county that the permittee has legally sufficient proprietary rights to perform the work on the property for which the permit has been issued nor shall it be construed as permission or license to enter on, occupy or otherwise utilize private or noncounty property without the express consent of the owner or agent in possession thereof. (Ord. 570 § 5.)

Section 6. Section 3-304 is amended to read as follows:

Chapter 74-2
ADOPTION

74-2.002 Adoption.

(a) The building code of this county is the 2007 California Building Code (California Code of Regulations, Title 24, Part 2, Volumes 1 and 2 [based on the 2006 International Building Code]), including Appendix Chapter 1, Appendix C, Appendix F, and Appendix I, as amended by the changes, additions, and deletions set forth in this ordinance.

(b) The 2007 California Building Code, with the changes, additions, and deletions set forth in this chapter and Division 72, is adopted by this reference as though fully set forth in this ordinance.

(c) At least one copy of this building code is now on file with the building inspection department, and the other requirements of Government Code section 50022.6 have been and shall be complied with.

(d) As of the effective date of this ordinance, the provisions of the building code are controlling and enforceable within the county. (Ord. 570 § 6.)

Chapter 74-4
MODIFICATIONS

74-4.002 Amendments. The 2007 California Building Code ("CBC") is amended by the changes, additions, and deletions set forth in this chapter and Division 72. Section numbers used below are those of the 2007 California Building Code.

(a) Section 501.2 of CBC Chapter 5 (General Building Heights and Areas) is amended to read:

501.2 Address numbers. Approved numbers or addresses shall be provided for all new buildings in such a position as to be plainly visible and legible from the street or road fronting the property. In addition, every new residential dwelling unit building shall be equipped with a lighted (illuminated) house number or address plainly visible and legible from the street or road fronting the property. As appropriate, the planning agency or county building official may grant exceptions to the illumination requirements when satisfied that the application of its requirements would impose an unreasonable hardship and expense for the owner and/or applicant due to special circumstances applicable to the involved new building(s) because of location, topography, or surroundings.

(b) Section 903.1 of CBC Chapter 9 (Fire Protection Systems) is amended to read:

Section 903.1 Automatic Sprinkler Systems – General. For new buildings an automatic sprinkler system shall be installed:

1. In all buildings when the total floor area, including mezzanines, exceeds 10,000 square feet.

2. In all buildings separated by one or more fire walls when the total floor area, including mezzanines, exceeds 20,000 square feet.

Exceptions to 1 and 2:

A. Agricultural buildings.

B. Group S Division 2 open parking garage buildings containing no other occupancies and where exterior walls containing openings are located not less than 20 feet from an adjacent property line or center street line or public space.

C. When determining a building's total floor area, the floor area of mechanical rooms of not more than 50 square feet and separated from the remainder of the building by not less than a 1 hour fire resistive occupancy separation need not be considered.

D. Nothing in this code prevents the application of more restrictive automatic fire sprinkler system requirements in those fire protection districts which have more restrictive requirements.

For purposes of this section, "new building" includes a building which replaces a preexisting building which has been substantially destroyed. The county building official shall determine whether a building has been substantially destroyed.

(c) Section 907.2.10.5.4 is added to Section 907.2.10.5 (Group R-3 Occupancies) of CBC Chapter 9 (Fire Protection Systems), to read:

907.2.10.5.4 In existing flat roof buildings, the installation of a smoke detector that complies with Sections 907.2.10 shall be required when a pitch roof is added on top of the existing flat roof and the solid seating of the flat roof is not removed.

(d) Section 1406.5 is added to Section 1406 (Combustible Materials on the Exterior Side of Exterior Walls) of CBC Chapter 14 (Exterior Walls), to read:

1406.5 Wood shakes or shingles. Wood shakes or shingles uses for exterior wall covering shall be fire treated unless there is a minimum of 10 feet from the exterior wall (including shakes or shingles) to the property line of all sides, except for any sides of exterior walls facing the street.

(e) Section 1614A.1.7 ASCE 7, Section 12.8.1.1 of CBC Chapter 1614A (Modifications to ASCE 7) is amended to read:

Section 1614A.1.7 ASCE 7, Section 12.8.1.1. Modify ASCE 7 Section 12.8.1.1 by amending Equation 12.8-5 as follows:

$$C_S = 0.044\, S_{DS}\, I \geq 0.01 \qquad \text{(Equation 12.8-5)}$$

(f) Section 1614A.1.32 ASCE 7, Section 12.12.3 is added to Section 1614A (Modifications to ASCE 7) of CBC Chapter 1614A (Structural Design), to read:

Section 1614A.1.32 ASCE 7, Section 12.12.3. Replace ASCE 7 Section 12.12.3 as follows:

12.12.3 Minimum Building Separation. All structures shall be separated from adjoining structures. Separations shall allow for the maximum inelastic response displacement (Δ_M). Δ_M shall be determined at critical locations with consideration for both translational and torsional displacements of the structure as follows:

$$\Delta_M = C_d\, \delta_{max} \qquad \text{(Equation 16-1)}$$

where δ_{max} is the calculated maximum displacement at Level x as defined in ASCE 7 Section 12.8.4.3, and C_d is the deflection amplification factor as defined in ASCE 7 Section 12.8.6.

Adjacent buildings on the same property shall be separated by at least a distance Δ_{MT} where

$$\Delta_{MT} = \sqrt{(\Delta_{M1})^2 + (\Delta_{M2})^2} \qquad \text{(Equation 16-2)}$$

and Δ_{M1} and Δ_{M2} are the maximum inelastic response displacements of the adjacent buildings.

Where a structure adjoins a property line not common to a public way, the structure shall also be set back from the property line by at least the displacement, Δ_M, of that structure.

Exception: Smaller separations or property line setbacks shall be permitted when justified by rational analysis.

(g) Section 1805.4.2.3 (Plain Concrete Footings) of CBC Chapter 18 (Soils and Foundations) is deleted.

(h) Section 1812.4 (Reinforcement) of CBC Chapter 18 (Soils and Foundations) is amended by deleting the exception.

(i) Section 1908.1 of CBC Chapter 19 (Concrete) is amended to read:

1908.1 General. The text of ACI 318 shall be modified as indicated in Sections 1908.1.1 through 1908.1.17.

(j) Section 1908.1.17 is added to Section 1908 (Modifications to ACI 318) of CBC Chapter 19 (Concrete), to read:

1908.1.17 ACI 318, Section 14.8. Modify ACI 318 Section 14.8.3 and Section 14.8.4, replacing equations (14-7), (14-8) and (14-9) as follows:

1. Modify equation 14-7 of ACI 318, Section 14.8.3 as follows:

   I_{cr} shall be calculated by Equation (14-7), and M_a shall be obtained by iteration of deflections.

$$I_{cr} = \frac{\frac{E_s}{E_c}\left[A_s + \frac{P_u}{f_y}\frac{h}{2d}\right](d-c)_2 + \frac{l_w c^3}{3}}{} \qquad \text{(Equation 14-7)}$$

   and the value $\frac{E_s}{E_c}$ shall not be taken less than 6.

2. Modify ACI Section 14.8.4 as follows:

   14.8.4 Maximum out-of-plane deflection, Δ_s, due to service loads, including PΔ effects, shall not exceed $\frac{l_c}{150}$.

   If M_a, maximum moment at mid-height of wall due to service later and eccentric loads, including PΔ effects, exceed $\left(\frac{2}{3}\right) M_{cr}$, Δ_s shall be calculated by Equation (14-8):

$$\Delta_s = \frac{2}{3}\Delta_{cr} + \frac{M_a - \frac{2}{3}M_{cr}\left(\Delta_n - \frac{2}{3}\Delta_{cr}\right)}{M_n - \frac{2}{3}M_{cr}} \qquad \text{(Equation 14-8)}$$

If M_a does not exceed $\left(\frac{2}{3}\right) M_{cr}$, Δ_s shall be calculated by Equation (14-9):

$$\Delta_s = \left(\frac{M_a}{M_{cr}}\right) \Delta_{cr} \qquad \text{(Equation 14-9)}$$

Where:

$$\Delta_{cr} = \frac{5 M_{cr} l_c^2}{48 E_c I_g}$$

$$\Delta_n = \frac{5 M_n l_c^2}{48 E_c I_{cr}}$$

(k) Section 1909 (Structural Plain Concrete) of CBC Chapter 19 (Concrete) is deleted.

(l) Section 1910.1 of CBC Chapter 19 (Concrete) is amended to read:

1910.1 Minimum Slab Provisions – General. Slabs shall have six inches by six inches by ten gauge wire mesh or equal at this midheight.

(m) CBC Appendix Chapter 1 is amended by the provisions of Division 72 of this code and as follows:

(1) Sections 103, 108, 111, 112, 113, 114, and 115 of CBC Appendix Chapter 1 are deleted.

(2) Section 105.2 (Work Exempt from Permit) of CBC Appendix Chapter 1 is amended to provide that a building permit is not required for the following work:

> Retaining walls that are not more than three feet in height, measured from the top of the footing to the top of the wall, unless supporting a surcharge or ground slope exceeding 1:2 or impounding class I, II, or III-a liquids.

All other work listed in Section 105.2 of CBC Appendix Chapter 1 is also exempt from a permit.

(3) Section 106.1 (Submittal Documents) of CBC Appendix Chapter 1 is amended by deleting the exception.

(4) Section 106.1.1 (Information on Construction Documents) of CBC Appendix Chapter 1 is amended to read:

> **106.1.1.** Plans and specifications shall be drawn to scale on substantial paper or cloth and shall be sufficient clarity to indicate the location, nature and extent of the work proposed and to show in detail that it will conform to this code and all relevant laws, ordinances, rules and regulations. The first sheet of each set of plans shall give the house and street address of the work and the name and address of the owner and of the person who prepared the plans. Plans shall include a plot plan showing the location of the lot corners as established on the ground, the elevation of the top and toe of cuts and fills, and the location of the proposed building and of every existing building on the property. Instead of detailed specifications, the county building official may approve references on the plans to a specific section or part of this code or other ordinances or laws.

Sections 106.1.1.1, 106.2, and 106.3 are not amended and remain in effect.

(5) Section 109.1 (Inspections – General) is amended by adding the following to the end of the section:

> At the time of first inspection by the county building official, property corners (including angle points) shall be identified with monuments in accordance with the legal description furnished with the application to build, sufficient to locate the proposed structure in relation to the lot lines, except that this requirement shall not apply to minor alterations or repairs to existing structures not affecting the exterior limits thereof, and construction of accessory buildings or structures of a building permit value of less than $500. The plot plan required by Section 106.1.1 shall indicate the locations and identification of all property corner monuments. Property corner monuments shall consist of one of the following:
>
> (A) Redwood hub not less than two inches square and twelve inches long;
>
> (B) Galvanized iron pipe not less than one inch in diameter and thirty inches long filled with concrete; or
>
> (C) Other material of sufficient durability, placed as not to be readily disturbed, acceptable to the county building official.
>
> Monuments shall be driven flush with the ground and tagged

as required by the Land Surveyor Act (Business and Professions Code section 8772).

(Ord. 570 § 6.)

Section 7. Section 3-305 is amended to read as follows:

3-305 County Ordinance Code Division 76 – Electrical Code

Chapter 76-2
ADOPTION

76-2.002 Adoption.

(a) The electrical code of this county is the 2007 California Electrical Code (California Code of Regulations, Title 24, Part 3 [based on the 2005 National Electrical Code]), as amended by the changes, additions, and deletions set forth in this ordinance.

(b) The 2007 California Electrical Code, with the changes, additions, and deletions set forth in this division and Division 72, is adopted by this reference as though fully set forth in this ordinance.

(c) At least one copy of this electrical code is now on file with the building inspection department, and the other requirements of Government Code section 50022.6 have been and shall be complied with.

(d) As of the effective date of this ordinance, the provisions of the electrical code are controlling and enforceable within the county. (Ord. 570 § 7.)

Chapter 76-4
MODIFICATIONS

Article 76-4.2
Amendments

76-4.202 General. The 2007 California Electrical Code is amended by the changes, additions, and deletions set forth in this chapter and Division 72. (Ord. 570 § 7.)

76-4.204 Amendments. The following sections of the 2007 California Electrical Code ("CEC") are amended. Section numbers used below are those of the 2007 California Electrical Code.

(a) Section 210.19 of CEC Article 210 (Branch Circuits) is amended by deleting the fourth FPN, and the following is added after the last sentence of Section 210-

19(A)(1) to read:

> Conductors for branch circuits as defined in Article 100 shall be sized to prevent a voltage drop exceeding 3 percent at the farthest outlet of power, heating and lighting loads, or combinations of such loads, and the maximum total voltage drop on both feeders and branch circuits to the farthest outlet shall not exceed 5 percent.

(b) Section 210-70 of CEC Article 210 (Branch Circuits) is amended by adding the following after the last sentence of Section 210-70(A)(2) to read:

> Approved numbers or addresses as required by Section 501.2 of CBC Chapter 5 (as amended) shall be illuminated for new residential occupancies.

(c) Section 210-70 of CEC Article 210 (Branch Circuits) is amended by adding the following after the last sentence of Section 210-70(C) to read:

> Industrial and Commercial Occupancies. Outdoor lighting outlets for illumination shall be installed at entrances and exits to buildings intended for industrial or commercial occupancies.

(Ord. 570 § 7.)

Article 76-4.4
General Requirements

76-4.1002 Authorization. The county building official is authorized to inspect all electrical equipment and work, including electrical equipment and work that is listed in CEC Section 90-2(B)(4) and CEC Section 90-2(B)(5) but is otherwise not covered by the CEC. When the county building official finds any electrical equipment to be dangerous or unsafe, the building official will so notify the person owning, using or operating it, who shall make the repairs or changes required to make the equipment safe, and complete this work within ten (10) days after notice or such further time as the county building official may set. Any electrical system deemed an immediate, imminent hazard to life and property shall be de-energized immediately by the owner, his representative or the county building official. (Ord. 570 § 7.)

76-4.404 Approved equipment.

(a) When obtainable, electrical equipment that an approved testing laboratory has examined, listed or labeled as conforming to applicable standards shall be used in preference to others.

(b) Listing or labeling conforming to the Standards of the Underwriters' Laboratories, Ind., the United States Bureau of Standards, the United States Bureau of Mines, or other similar institutions of recognized standing shall be prima facie evidence of

conformity with the requirements of this section. The maker's name, trademark, or other identification symbol shall be placed on all electrical equipment used or installed under this division.

(c) Old or used electrical equipment shall not be used in any work under this division without the specific approval of the county building official. (Ord. 570 § 7.)

76-4.406 Moved buildings. Electrical systems that are part of buildings or structures moved into this jurisdiction shall comply with the provisions of this code for new buildings. (Ord. 570 § 7.)

76-4.408 Application of Chapters 2, 3, and 5, Division 1, Title 25, C.C.R. Electrical work in mobilehome parks and campgrounds shall comply with Chapters 2, 3, and 5 of Division 1 of Title 25 of the California Code of Regulations. (Ord. 570 § 7.)

Article 76-4.6
Connections to Installations

76-4.602 County building official's approval required. No person shall connect a source of electrical energy, or supply electric service, to any electrical equipment for the installation of which a permit is required without first obtaining the county building official's written authorization. (Ord. 570 § 7.)

76-4.604 Unlawful reconnections. No person shall connect a source of electrical energy, or supply electric service, to any electrical equipment which the county building official has disconnected or ordered disconnected until the building official authorizes in writing its reconnection and use. The county building official will notify the serving utility of the order to discontinue use. (Ord. 570 § 7.)

76-4.606 Unlawful wiring, electric fences, warning.

(a) Prohibition. Except as hereinafter provided, no person shall construct or maintain any spring gun, or any electric wiring device, designated or intended to injure and/or shock animals or persons, or any contribance or apparatus for such purpose.

(b) Livestock Exception. Persons principally engaged in the business of handling livestock as a primary means of production or income may electrify fences to control or confine livestock upon complying with all the following requirements:

(1) Any contrivance or mechanism to control electrical current in such fences shall be listed by an approved testing laboratory, and shall include a suitable interrupting device and such other safety devices to prevent dangerous currents getting on the fence at any time.

(2) Any electrical fence to which the public may have access, except cross fences to confine and control livestock, shall be posted with a warning

notice containing the following or similar wording: "DANGER. ELECTRIC FENCE," or "DANGER. HIGH VOLTAGE." This notice shall be posted along any such main fence at intervals of not more than 200 feet and in letters at least two inches high. (Ord. 570 § 7.)

76-4.608 Power from generators.

(a) All occupancies that have commercially supplied electricity shall connect to the commercial supplier.

(b) Any occupancy that has commercially supplied electricity shall not use a permanent or temporary generator(s), provided that a generator(s) may be used for commercial purposes when authorized by the county building official. (Ord. 570 § 7.)

76-4.610 Boat docks. Whether open or roofed, lighting shall be provided to insure sufficient protective lighting at least two foot candles at all points for pedestrians on the docks, within covered berths, and on all walkways or ramps to shore and to the nearest access road within or adjacent to the harbor property. (Ord. 570 § 7.)

76-4.612 Public nuisance lighting. Lighting fixtures shall be so installed, controlled or directed that the light will not glare or be blinding to pedestrians or vehicular traffic or on adjoining property. (Ord. 570 § 7.)

76-4.614 Time of service.

(a) On alteration jobs requiring a change of service, the service shall be changed and inspected at the frame or rough wiring state.

(b) On swimming pool jobs requiring a change of service, the service shall be changed and completed prior to the approval for pouring or cementing of the pool or steel inspection of the pool cavity. (Ord. 570 § 7.)

Section 8. Section 3-306 is amended to read as follows:

3-306 County Ordinance Code Division 78 – Plumbing Code

Chapter 78-2
ADOPTION

78-2.002 Adoption.

(a) The plumbing code of this county is the 2007 California Plumbing Code (California Code of Regulations, Title 24, Part 5 [based on the 2006 Uniform Plumbing Code]), as amended by the changes, additions, and deletions set forth in this ordinance.

(b) The 2007 California Plumbing Code, with the changes, additions, and deletions set forth in this division and Division 72, is adopted by this reference as though fully set forth in this ordinance.

(c) At least one copy of this plumbing code is now on file with the building inspection department, and the other requirements of Government Code section 50022.6 have been and shall be complied with.

(d) As of the effective date of this ordinance, the provisions of the plumbing code are controlling and enforceable within the county. (Ord. 570 § 8.)

Chapter 78-4
MODIFICATIONS

Article 76-8.2
Amendments

76-8.202 General. The 2007 California Plumbing Code is amended by the changes, additions, and deletions set forth in this chapter and Division 72. (Ord. 570 § 8.)

76-8.204 Amendments. The following sections of the 2007 California Plumbing Code ("CPC") are amended. Section numbers used below are those of the 2007 California Plumbing Code.

(a) Section 320 is added to CPC Chapter 3 (General Regulations) to read:

320 Inspection. Bathtubs shall be set, shower pans installed, floor flanges for water closets installed, backing installed, and all water piping strapped and backed before the framing inspection. (Ord. 570 § 8.)

(b) Section 1211.2.1 of CPC Chapter 12 (Fuel Piping) is amended by adding the following after the last sentence of Section 1211.2.1 to read:

Low pressure gas pipe installed above grade and exposed to the elements is to be galvanized iron pipe. (Ord. 570 § 8.)

Section 9. Section 3-307 is amended to read as follows:

3-307 County Ordinance Code Division 710 – Mechanical Code

Chapter 710-2
ADOPTION

710-2.002 Adoption.

(a) The mechanical code of this county is the 2007 California Plumbing Code (California Code of Regulations, Title 24, Part 4 [based on the 2006 Uniform

Mechanical Code]), as amended by the changes, additions, and deletions set forth in this ordinance.

(b) The 2007 California Mechanical Code, with the changes, additions, and deletions set forth in Division 72, is adopted by this reference as though fully set forth in this ordinance.

(c) At least one copy of this mechanical code is now on file with the building inspection department, and the other requirements of Government Code section 50022.6 have been and shall be complied with.

(d) As of the effective date of this ordinance, the provisions of the plumbing code are controlling and enforceable within the county. (Ord. 570 § 9.)

Section 10. Section 3-308 is amended to read as follows:

3-308 Violations

(a) It is unlawful for a person to erect, construct, enlarge, alter, repair, move, improve, remove, convert, or demolish equipment, use, or occupy or maintain a building or structure in violation of a provision of Ordinance 2002-31 and the California Codes adopted by reference by this ordinance.

(b) A violation of subsection (a) is an infraction punishable by a fine of $100 for a first violation, $200 for a second violation within one year and $500 for each additional violation within one year.

(c) In place of the penalty provided in subsection (b), a violation is punishable by an administrative fine in the amount of $100 for a first violation, $200 for a second violation within a 36-month period, and $500 for each additional violation within one year.

(d) Each day during which an offense exists is a separate offense. (Ord. 570 § 10.)

Section 11. Section 3-309 is amended to read as follows:

3-309 Repeals

Ordinance No. 570 and all ordinances adopting a previous edition of the Uniform Codes or California Codes that are adopted by this ordinance are superceded and repealed.

Section 12. Effective Date.

This ordinance becomes effective thirty (30) days after its adoption.

The foregoing ordinance was introduced at a regular meeting of the City Council of the City of Lafayette on January 28, 2008 and was adopted at a regular meeting of the City Council on February 25, 2008, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

_____

Mike Anderson, Mayor

ATTEST:

_____

Joanne Robbins, City Clerk

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CITY OF LAFAYETTE
PLANNING DEPT.

SD3

Contra Costa County

TO: BOARD OF SUPERVISORS

FROM: CARLOS BALTODANO, DIRECTOR
BUILDING INSPECTION DEPARTMENT

DATE: November 27, 2007

SUBJECT: California Building Code, California Mechanical Code, California Plumbing Code and California Electrical Code

SPECIFIC REQUEST(S) OR RECOMMENDATION(S) & BACKGROUND AND JUSTIFICATION

RECOMMENDATIONS

1. OPEN the public hearing on Ordinance No. 2007-54, RECEIVE testimony, and CLOSE the public hearing.
2. ADOPT Ordinance No. 2007-54, adopting the 2007 California Building Code (Volumes 1 and 2), the 2007 California Electrical Code, the 2007 California Plumbing Code, and the 2007 California Mechanical Code, with changes, additions, and deletions.
3. ADOPT the attached findings in support of the County's changes, additions, and deletions to the statewide codes.
4. DIRECT the Building Inspection Department, pursuant to Health and Safety Code section 17958.7, to send a certified copy of Ordinance No. 2007-54, the attached findings, and this Board Order to the California Department of Housing and Community Development and to the California Building Standards Commission.
5. FIND that adoption of the ordinance is exempt from CEQA pursuant to CEQA Guidelines section 15061(b)(3).
6. DIRECT staff to file a Notice of Exemption with the County Clerk.
7. AUTHORIZE the preparation of an ordinance summary by County Counsel and the publication of the summary in accordance with Government Code section 25124.

CONTINUED ON ATTACHMENT: SIGNATURE Carlos Baltodano

✓ RECOMMENDATION OF COUNTY ADMINISTRATOR ___ RECOMMENDATION OF BOARD COMMITTEE

✓ APPROVE ___ OTHER

SIGNATURE(S): Julie Enea

ACTION OF BOARD ON November 27, 2007 APPROVED AS RECOMMENDED ✓ OTHER

The Chair opened the public hearing; there were no public speakers. The Chair closed the public hearing.

VOTE OF SUPERVISORS

✓ UNANIMOUS (ABSENT None)
AYES: ___ NOES: ___
ABSENT: ___ ABSTAIN: ___

I HEREBY CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF AN ACTION TAKEN AND ENTERED ON THE MINUTES OF THE BOARD OF SUPERVISORS ON THE DATE SHOWN.

ATTESTED: November 27, 2007
John Cullen, Clerk of the Board of Supervisors and County Administrator

BY K. Sinclair, DEPUTY

Contact:

cc: Building Inspection
County Administrator
County Counsel
Community Development
Public Works

FISCAL IMPACT

None known at this time.

BACKGROUND/REASONS FOR RECOMMENDATIONS

On November 6, 2007, the Board of Supervisors introduced Ordinance No. 2007-54, adopting the 2007 California Building Code (Volumes 1 and 2), the 2007 California Electrical Code, the 2007 California Plumbing Code, and the 2007 California Mechanical Code, with changes, additions, and deletions. The Board waived the reading and fixed November 27, 2007 at 9:00 a.m., for a public hearing to adopt the attached findings in support of the County's changes, additions, and deletions to the statewide codes.

The California Building Standards Commission has adopted and published the 2007 Building Standards Code, which is comprised of the 2007 California Building, Mechanical, Plumbing and Electrical Codes. These statewide codes become effective January 1, 2008. These codes are enforced in Contra Costa County by the Building Inspection Department.

Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes and establish more restrictive building standards if the local jurisdiction finds that the changes and modifications are reasonably necessary because of local climatic, geological or topographical conditions. The attached ordinance adopts the statewide codes and amends them to address local conditions.

Staff has reviewed the statewide codes and recommends their adoption with a minimum of technical changes in order to retain as much statewide uniformity as possible. The State did not adopt the new International Housing Codes, and therefore the 1997 Uniform Housing Code (UHC), with local amendments, continues as the adopted housing code for the County.

However, Ordinance No. 2007-54 does amend the statewide codes in some respects to address certain local climatic, geological or topographical conditions. These conditions are described in the attached findings. The ordinance amends the statewide codes by increasing the minimum base shear in certain buildings to a level consistent with previous building codes. The ordinance addresses the need to prevent damage from pounding during an earthquake by providing increased separation between adjacent buildings on the same property and at property lines. The ordinance addresses a deficiency in the statewide code's design provisions associated with the service load deflections of slender concrete shear walls by increasing the lateral stiffness of the shear wall. The ordinance amends the statewide codes by requiring an automatic sprinkler system to be installed in all buildings where the total floor area exceeds 10,000 square feet. The ordinance further amends the statewide codes by requiring the installation of a smoke detector in existing flat roof buildings when a pitch roof is added on top of the existing flat roof and the solid sheathing of the flat roof is not removed. This amendment will address some of the fire concerns that were experienced in the recent fire in San Pablo where two firefighters and two residents perished.

The California Building Standards Commission reviews and adopts statewide building standards codes on a regular basis. For decades, the California Building Standards Code was based on the Uniform Building Codes (UBC) published by the International Conference of Building Officials (ICBO). In 2002, the Board of Supervisors adopted these uniform codes as the county building codes. In its most recent review of the statewide codes, the California Building Standards Commission

decided to base the statewide codes on the International Building Code (IBC) published by the International Code Council (ICC). Previously, building codes were developed by three regional model code groups: The Building Officials Code Administrators International (BOCA) that covered the East Coast and the Mid-west; the Southern Building Code Congress International (SBCCI) that covered the Southeast; and the ICBO that covered the West Coast. These three organizations combined to form the International Code Council (ICC) and have published the IBC based on the three model codes.

It has been a long road for competing interests to convince the State that the IBC was the best document for the citizens for California. The State's adoption process involved several agencies, Building and Fire officials, architects, engineers, contractors, labor groups and the public.

While it has been a long process, the result is a safer California. The International Building Code introduces more stringent structural design requirements due to the proximity to seismic zones. There are also stiffer requirements for special inspections and observations of structural construction. The most important aspect of the IBC is that it has been adopted by all 50 states in the country, including California. There is now more uniformity on a national level. While the International Building Codes provides a common code for the country, it introduces a new format, new terms and different occupancy changes. In combining this new formatting with the County Code it was necessary to clarify and renumber certain sections in Title 7.

Staff has determined that the adoption of this ordinance is not subject to the California Environmental Quality Act (CEQA), pursuant to CEQA Guideline Section 15061(b)(3). It can be seen with certainty that the adoption of the California building standards codes with local amendments will not have a significant effect on the environment.

Notice of this public hearing was published pursuant to Government Code section 6066. A summary of this ordinance was prepared by County Counsel and published at least five days before this hearing pursuant to Government Code section 25124(b). The summary of this ordinance will be published again within 15 days of adoption pursuant to Government Code section 25124.

CONTRA COSTA COUNTY
FINDINGS IN SUPPORT OF CHANGES, ADDITIONS, AND DELETIONS TO STATEWIDE BUILDING STANDARDS CODE

The California Building Standards Commission has adopted and published the 2007 Building Standards Code, which is comprised of the 2007 California Building, Mechanical, Plumbing and Electrical Codes. These statewide codes become effective January 1, 2008. These codes are enforced in Contra Costa County by the Building Inspection Department.

Although these codes apply statewide, Health and Safety Code sections 17958.5 and 18941.5 authorize a local jurisdiction to modify or change these codes and establish more restrictive building standards if the jurisdiction finds that the modifications and changes are reasonably necessary because of local climatic, geological or topographical conditions.

Ordinance No. 2007-54 adopts the statewide codes and amends them to address local conditions. Pursuant to Health and Safety Code section 17958.7, the Contra Costa County Board of Supervisors finds that the more restrictive standards contained in Ordinance No. 2007-54 are reasonably necessary because of the local climatic, geological, and topographic conditions that are described below.

I. Local Conditions

A. Geological and Topographic

1. Seismicity

(a) Conditions

Contra Costa County is located in Seismic Risk Zone 4, which is the worst earthquake area in the United States. Buildings and other structures in Zone 4 can experience major seismic damage. Contra Costa County is in close proximity to numerous earthquake faults including the San Andreas Fault and contains all or portions of the Hayward, Calaveras, Concord, Antioch, Mt. Diablo, and other lesser faults. A 4.1 earthquake with its epicenter in Concord occurred in 1958, and a 5.4 earthquake with its epicenter also in Concord occurred in 1955. The Concord and Antioch faults have a potential for a Richter 6 earthquake and the Hayward and Calaveras faults have the potential for a Richter 7 earthquake. Minor tremblers from seismic activity are not uncommon in the area.

A study released in 1990 by the United States Geological Survey says that there is a 67% chance of another earthquake the size of Loma Prieta during the next 30 years, and that the quake could strike at any

time, including today. Scientists, therefore, believe that an earthquake of a magnitude 7 or larger is now twice as likely to happen as to not happen.

Interstates 680, 80, 580 and State Route 4 run the length throughout Contra Costa County. These interstates and state routes divide the County into a west, south, north and east. An overpass or undercrossing collapse would significantly alter the response route and time for responding emergency equipment. This is due to limited crossings of the interstate and that in some areas there is only one surface street, which runs parallel to the interstate, which would be congested during a significant emergency.

Earthquakes of the magnitude experienced locally can cause major damage to electrical transmission facilities and to gas and electrical lines in buildings, which in turn start fires throughout the County. The occurrence of multiple fires will quickly deplete existing fire department resources; thereby reducing and/or delaying their response to any given fire.

(b) Impact

A major earthquake could severely restrict the response of all Contra Costa County Fire Districts and their capability to control fires involving buildings of wood frame construction, with ordinary roofing materials and flammable exteriors, or with large interior areas not provided with automatic smoke and fire control systems. Also, when buildings not equipped with earthquake structural support move off their foundations, gas pipes may rupture. Fires develop from line ruptures and spread from house to house, causing an extreme demand for fire protection resources. The proximity of large areas within the County to fault traces, necessitates adopting stricter structural construction standards.

2. Soils

(a) Conditions

The area is replete with various soils, which are unstable, clay loam and alluvial fans being predominant. These soil conditions are moderately to severely prone to swelling and shrinking, are plastic, and tend to liquefy.

Throughout Contra Costa County, the topography and development growth has created a network of older, narrow roads. These roads vary from gravel to asphalt surface and vary in percent of slope, many

exceeding twenty (20) percent. Several of these roads extend up through the winding passageways in the hills providing access to remote, affluent housing subdivisions. The majority of these roads are private with no established maintenance program. During inclement weather, these roads are subject to rock and mudslides, as well as down trees, obstructing all vehicle traffic. It is anticipated that during an earthquake, several of these roads would be unpassable so as to prevent fire protection resources from reaching fires cause by gas line ruptures or other sources.

3. Topographic

(a) Conditions

i. Vegetation

Highly combustible dry grass, weeds, and brush are common in the hilly and open space areas adjacent to built-up locations six (6) to eight (8) months of each year. Many of these areas frequently experience wildland fires, which threaten nearby buildings, particularly those with wood roofs, or sidings. This condition can be found throughout Contra Costa County, especially in those developed and developing areas of the County. Earthquake gas fires due to gas line ruptures can ignite grasslands and stress fire district resources.

ii. Surface Features

The arrangement and location of natural and manmade surface features, including hills, creeks, canals, freeways, housing tracts, commercial development, fire stations, streets and roads, combine to limit feasible response routes for Fire District resources in and to District areas.

iii. Buildings, Landscaping and Terrain

Many of the newer large buildings and building complexes have building access and landscaping features and designs, which preclude or greatly limit any approach or operational access to them by Fire District vehicles. In addition, the presence of security gates and roads of inadequate width and grades that are too steep for Fire District vehicles adversely effect fire suppression efforts.

When Fire District vehicles cannot gain access to buildings involved with fire, the potential for complete loss is realized.

Difficulty reaching a fire site often requires that fire personnel both in numbers and in stamina. Access problems often result in severely delaying, misdirecting or making impossible fire and smoke control efforts. In existing structures where pitch roofs have been built over an existing roof, smoke detectors should be required to warn residents of smoke and fire before the arrival of fire personnel.

(b) Impact

The above local geological and topographical conditions increase the magnitude, exposure, accessibility problems, and fire hazards presented to the County fire resources. Fire following an earthquake has the potential of causing greater loss of life and damage than the earthquake itself. Most earthquake fires are created by natural gas developed from gas line ruptures. Hazardous materials, particularly toxic gases, could pose the greatest threat to the largest number, should a significant seismic event occur. Public safety resources would have to be prioritized to mitigate the greatest threat, and may likely be unavailable for smaller single dwellings that were caused by broken gas lines.

Other variables may tend to intensify the situation:

1. The extent of damage to the water system
2. The extent of isolation due to bridge and/or freeway overpass collapse.
3. The extent of roadway damage and/or amount of debris blocking the roadways.
4. Climatic condition (hot, dry weather with high winds).
5. Time of day will influence the amount of traffic on roadways and could intensify the risk to life during normal business hours.
6. The availability of timely mutual aid or military assistance.
7. The large portion of dwellings with wood shake or shingle coverings (both on the roof diaphragm and sides of the dwellings) could result in conflagrations.
8. The large number of dwellings that slip off their foundations and rupture gas lines and electrical systems resulting in further conflagrations.

B. Climatic

1. Precipitation and Relative Humidity

(a) Conditions

Precipitation ranges from 15 to 24 inches per year with an average of approximately 20 inches per year. Ninety-six (96) percent falls during the months of October through April and four (4) percent from May through September. This is a dry period of at least five (5) months each year. Additionally, the area is subject to occasional drought. Relative humidity remains in the middle range most of the time. It ranges from forty-five (45) to sixty-five (65) percent during spring, summer, fall, and from sixty (60) to ninety (90) percent in the winter. It occasionally falls as low as fifteen (15) percent.

(b) Impact

Locally experienced dry periods cause extreme dryness of untreated wood shakes and shingles on buildings and non-irrigated grass, brush and weeds, which are often near buildings with wood roofs and sidings. Such dryness causes these materials to ignite very readily and burn rapidly and intensely. Gas fires due to gas line ruptures can also spark and engulf a single family residence during these dry periods.

Because of dryness, a rapidly burning gas fire or exterior building fire can quickly transfer to other buildings by means of radiation or flying brands, sparks or embers. A small fire can rapidly grow to a magnitude beyond the control capabilities of the Fire District resulting in an excessive fire loss.

2. Temperature

(a) Conditions

Temperatures have been recorded as high as 114° F. Average summer highs are in the 75° - 90° range, with average maximums of 105° F in some areas of unincorporated Contra Costa County.

(b) Impact

High temperatures cause rapid fatigue and heat exhaustion of firefighters, thereby reducing their effectiveness and ability to control large building, wildland fires, and fires caused by gas line ruptures.

Another impact from high temperatures is that combustible building material and non-irrigated weeds, grass and brush are preheated, thus causing these materials to ignite more readily and burn more rapidly and intensely. Additionally, the resultant higher temperature of the atmosphere surrounding the materials reduces the effectiveness of the water being applied to the burning materials. This requires that more

water be applied, which in turn requires more fire resources in order to control a fire on a hot day. High temperatures directly contribute to the rapid growth of fires to an intensity and magnitude beyond the control capabilities of the Fire Districts in Contra Costa County. The change of temperatures throughout the County between very low and extreme highs contributes to a voltage drop in conductors used for power pole lines. This necessitates that voltage drops be considered.

3. Winds

(a) Conditions

Prevailing winds in many parts of Contra Costa County are form the north or northwest in the afternoons. However, winds are experienced from virtually every direction at one time or another. Velocities can reach fourteen (14) mph to twenty-three (23) mph ranges, gusting to twenty-five (25) to thirty-five (35) mph. Forty (40) mph winds are experienced occasionally and winds up to fifty-five (55) mph have been registered locally. During the winter half of the year, strong, dry, gusty winds from the north move through the area for several days, creating extremely dry conditions.

(b) Impact

Winds such as those experienced locally can and do exacerbate fires, both interior and exterior, to burn and spread rapidly. Fires involving non-irrigated weeds, grass, brush, and fires caused by gas line ruptures can grow to a magnitude and be fanned to an intensity beyond the control capabilities of the fire services very quickly even by relatively moderate winds. When such fires are not controlled; they can extend to nearby buildings, particularly those with untreated wood shakes or shingles.

Winds of the type experienced locally also reduce the effectiveness of exterior water streams used by all Contra Costa County Fire Districts on fires involving large interior areas of buildings, fires which have vented through windows and roofs due to inadequate built-in fire protection and fires involving wood shake and shingle building exteriors. Local winds will continue to be a definite factor toward causing major fire losses to buildings not provided with fire resistive roof and siding materials and buildings with inadequately separated interior areas, or lacking automatic fire protection systems, or lacking proper gas shut-off devices to shut off gas when pipes are ruptured, or lacking proper electrical systems. National statistics frequently cite wind conditions, such as those experienced locally, as a major factor where conflagrations have occurred.

II. Necessity of More Restrictive Standards

Because of the conditions described above, the Contra Costa County Board of Supervisors finds that there are building and fire hazards unique to Contra Costa County that require the increased fire protection and structural and design load requirements set forth in Ordinance No. 2007-54. The ordinance amends the statewide codes by increasing the minimum base shear in certain buildings to a level consistent with previous building codes. (§ 74-4.002(e).) The ordinance addresses the need to prevent damage from pounding during an earthquake by providing increased separation between adjacent buildings on the same property and at property lines. (§ 74-4.002(f).) The ordinance addresses a deficiency in the statewide code's design provisions associated with the service load deflections of slender concrete shear walls by increasing the lateral stiffness of the shear wall. (§ 74-4.002(j).) The ordinance amends the statewide codes by requiring an automatic sprinkler system to be installed in all buildings where the total floor area exceeds 10,000 square feet. (§ 74-4.002(b).) The ordinance further amends the statewide codes by requiring the installation of a smoke detector in existing flat roof buildings when a pitch roof is added on top of the existing flat roof and the solid seating of the flat roof is not removed. (§ 74-4.002(c).)